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ABSTRACT

A 1998 study of Middle Tennessee State University (MTSU) faculty assessed the impact of technology on teaching and learning; this present study of MTSU students extends the 1998 study by measuring student perceptions about instructional technology and the impact it has on learning. A four-part questionnaire was distributed to 1,900 students in technology-equipped classrooms across campus. The first part of the questionnaire measured student perceptions and skills related to various types of technologies. The second part measured frequency of use of various instructional technology applications, including computer applications to present lecture outlines or demonstrate concepts, audio/visual equipment, electronic communication, and supplementary use or development of materials such as World Wide Web pages, computer-assisted instruction modules, and computer-based applications. The third segment of the questionnaire gathered information about the projected future use of instructional technology by students, and the final portion gathered demographic information. Survey results led to the following major findings: (1) use of instructional technology positively affects student learning; (2) use of instructional technology increases student interest and satisfaction; (3) role of faculty and their ability to use instructional technology are major factors; (4) certain instructional technology techniques better facilitate certain learning activities; and (5) instructional technology is an integral part of today's learning environment. (MES)

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Assessing the Impact of Technology on Teaching and Learning: Student Perspectives

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ED 436 118

Introduction
Method
Survey Results and Major Findings
Conclusion
Contact

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The use of instructional technology in higher education has increased substantially over the past several years. "Computer technology provides students and teachers with unprecedented opportunities to transform the teaching and learning process, from the most common and simple uses to the most sophisticated." (Sulla, 1999) Educators are readily embracing the challenges of integrating that technology into their teaching. However, authors and educators still question whether its use positively impacts the learning process. Research is beginning to focus more on the evaluation of the use of technology, but results remain inconclusive. (Sulla, 1999) This study on the effectiveness of instructional technology at Middle Tennessee State University (MTSU) from the student's perspective adds to this area of research. Results from the study provide valuable information that helps to determine measures for improving technology resources for MTSU faculty and students.

MTSU is a regional university that services approximately 18,000 undergraduate and graduate students. Through five colleges and thirty-five departments and schools, MTSU offers instruction toward degrees in the basic and applied sciences, business, education, liberal arts, and mass communication. Efforts have been made over the last several years to provide educators and students with the resources necessary for the integration of technology. From early computer laboratories utilized by a small percentage of faculty and students to the recent opening of a new academic building equipped with forty-seven technology-based classrooms and an approximately 200-station computer laboratory, the administration has demonstrated its commitment to instructional technology as an integral component of the higher education experience. MTSU offers a campus-wide network, approximately 70 technology-equipped classrooms, and over sixty computer labs for technology-enhanced learning activities.

A 1998 study of MTSU faculty assessed the impact of technology on teaching and learning. The study evaluated the effectiveness of instructional technology by measuring its impact on the depth and breadth of content covered, student performance, and good teaching practices that were widely acknowledged as catalysts for improved learning. Results showed that the overwhelming majority of MTSU faculty believe that instructional technology is essential and is being widely used across campus with different technologies accommodating different teaching practices. This study of MTSU students extends the 1998 study by measuring student perceptions about instructional technology and the impact that it has on learning.

[Top]

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METHOD

A four-part questionnaire was used to collect data in the study. Approximately 1900 questionnaires were sent to faculty teaching in master classrooms (technology-equipped classrooms) across campus. Faculty were asked to distribute the questionnaires to students. The questionnaire was pilot tested by a group of students and deemed a viable test instrument taking an average of ten to fifteen minutes to complete. Eight percent of all undergraduate students completed and returned the questionnaire.

The questionnaire begins with a statement providing the purpose of the study and statements assuring anonymity and confidentiality. Questions give students an opportunity to express some general feelings and beliefs regarding learning styles and instructional technology at MTSU. The first section summarizes the wide variety of instructional technology applications and resources available at MTSU and encourages students to respond based on their general impression or feeling. In this section, students rate how much they agree with a variety of statements that measure their perceptions about various types of instructional technologies and their value in the classroom. Other questions ask students to rate their levels of skills using various types of technologies.

The second part of the survey measures the frequency of use of various instructional technology applications by MTSU students and instructors. These applications include computer applications to present lecture outlines or demonstrate specific concepts; using audio/visual equipment to display materials; communicating electronically with instructors and other students; and supplementary use or development of materials such as web pages, computer-assisted instruction modules, and computer-based applications. In this section, students evaluate the effect of these applications on the depth and breadth of content covered, student performance, and good teaching practices including interaction with students, student collaboration, student participation and feedback, and expectations of student performance.

The third segment of the questionnaire gathers information about the projected future use of instructional technology by MTSU students. Students rate the likelihood of a series of statements that regard their anticipated use/interaction with various types of instructional technologies within the remaining courses at MTSU.

The final portion of the questionnaire gathers basic demographic information such as academic standing, department, and discipline. An open-ended statement allows students to discuss why they feel instructional technology is or is not important. Students are provided with the opportunity to make additional comments.
[Top]

SURVEY RESULTS AND MAJOR FINDINGS

The survey results lead to several major findings. These findings give MTSU faculty and administrators a better understanding of the impact that technology can have in the teaching and learning process as well as assist with future planning.

1. The Use of Instructional Technology Positively Affects Student Learning

   Ninety-five percent of responding students agree with the statement, "I believe that the use of technology in the classroom can enhance student learning." The study results show a strong correlation between the number of courses students had in a master classroom (a technology-enhanced classroom) and the positive effects of instructional technology on their learning. Students recognize better organization of course materials as one by-product of the use of technology in the classroom. They write that it makes class notes more legible, accurate, and

accessible. Comments include: "Organization is better. Note taking is easier. You can listen to the instructor more while taking notes." "Instructional technology helps organize presentations and notes while widening discussion outside the lecture."

Students also acknowledge instructional technology's appeal to different learning styles. Reasons vary from ones such as "it helps students visualize things that can't be drawn on a chalkboard" and " it better illustrates concepts" to others such as these:

"It facilitates teaching to students of all learning styles and makes it easier for instructors to supplement teaching with enrichment and extra activities."

"It provides a visual learning source that can help you remember lecture materials."

2. The Use of Instructional Technology Increases Student Interest and Satisfaction

Some students find that instructional technology when used effectively can make learning more stimulating, interesting, or just plain fun. Students write that increased interactivity, added visual components, and variety in instructional delivery methods help to increase their satisfaction. Their comments include:

"It allows diversity in teaching techniques and keeps material interesting."

"It gets students more involved and interested in learning as it provides them with a more visual way to learn."

3. The Role of Faculty and Their Ability to Use Instructional Technology are Major Factors

While the responding students predominantly agree that technology provides valuable teaching tools, they often comment that "it is no substitute for a good teacher or for instruction." Numerous students note the impact that the use of technology can have on faculty/student interaction. Students write:

"Technology can be a powerful tool but classroom success still depends on the quality of student/teacher interaction."

"The use of email as a communication tool is essential. It is another way to initiate student/instructor interaction."

The majority of the responding students feel they have the skills and knowledge to effectively use technology. The ability of faculty to use technology as an effective teaching tool is an issue for some students. Students express concerns about faculty who lack the proper skills to use the technology and faculty who misuse the technology. Comments from them include:

"Some teachers use technology very effectively and others do not. Its effectiveness depends on the teacher's ability to use the technology."

"Technology can be negative when a teacher loses creativity and energy just because he or she has become dependent on PowerPoint or videos."

"I feel that instructional technology's impact on learning depends on how well the teacher uses it."

4. Certain Instructional Technology Techniques Better Facilitate Certain Learning Activities

The primary purpose of this study was to see what role, if any, technology plays in facilitating learning. Survey results indicate that technology does indeed have an important role in improving conditions for good learning in MTSU classrooms. Students find that certain technologies better promote certain learning activities.

Ninety-five percent of the respondents indicate that the organization of content covered is best facilitated by the instructor's use of computer applications to present lecture outlines and to demonstrate specific concepts. Most of the respondents recognize the instructor's use of computer applications as well as his or her use of audio/visual technology as having a positive effect on their understanding of the course materials. One student writes:

"Technology helps present information better. For example, we watch videos about ads that we would otherwise just have to imagine."

The majority of the responding students identify electronic mail as the technology that best facilitates their interaction with the instructor, collaboration with other students, and feedback from the instructor. However, only fifty-percent of them have communicated electronically with an instructor or classmates about class projects. A student comments:

"The use of email as a communication tool is essential. It is another way to initiate student/instructor interaction that is beneficial."

Eighty-five percent of the respondents select the instructor's use of computer applications to demonstrate specific concepts and use of audio/visual equipment as the technology techniques that most positively increased satisfaction with course outcome.

5. Instructional Technology is an Integral Part of Today's Learning Environment

Many of the responding students concede that technology is here to stay and that they must be able to use it effectively as they enter the real world. They acknowledge the role of instructional technology in helping prepare them for the future with comments such as: "Technology is everywhere. Its use in the classroom makes me feel good about my education and also teaches me things I will need to know when I enter the workforce."

"It is undeniably the future. To ignore it would be disastrous to anyone's career. Learning interactively now prepares us for our future."

[Top]

CONCLUSION

The results of this study concur with results from the earlier faculty study. Faculty demonstrate their acceptance and adoption of instructional technology as a "good teaching" practice, while students agree that it significantly enhances their learning. As one student summarizes:

"Instructional technology, not only enhances learning through organization and clarity, but adds to the professionalism and atmosphere of the university, which helps motivate students to learn and participate."

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[Top]